

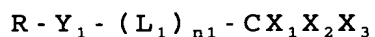
WHAT IS CLAIMED IS:

1. An image forming method for forming an image with an image recording apparatus including laser irradiation means for scan exposing, with a laser beam, a photothermographic material comprising a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent and a binder on at least one surface of a support, and means for transporting the photothermographic material in a sub scanning direction and guiding it to a thermal developing portion, wherein:

1) the photothermographic material comprises at least one compound selected from compounds represented by the following formulae (1a), (1b) and (1c); and

2) a distance between a scanning exposure position of the laser irradiation means and an insertion part of the thermal developing portion is 50 cm or less:

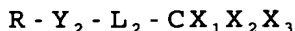
Formula (1a)



wherein,  $X_1$ ,  $X_2$  and  $X_3$  each independently represent a hydrogen atom or a substituent, provided that at least one of  $X_1$ ,  $X_2$  and  $X_3$  is a halogen atom;  $L_1$  represents a sulfonyl group;  $n1$  represents 0 or 1;  $Y_1$  represents - $N(R_1)$ -, a sulfur atom, an oxygen atom, a selenium atom, or - $(R_2)C=C(R_3)$ -;  $R_1$ ,  $R_2$  and  $R_3$  each independently

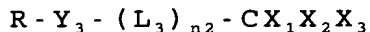
represent a hydrogen atom or a substituent; and R represents a hydrogen atom, a halogen atom, an aliphatic group, an aryl group or a heterocyclic group;

Formula (1b)



wherein,  $X_1$ ,  $X_2$  and  $X_3$  each independently represent a hydrogen atom or a substituent, provided that at least one of  $X_1$ ,  $X_2$  and  $X_3$  is a halogen atom;  $L_2$  represents a carbonyl group or a sulfinyl group;  $Y_2$  represents  $-N(R_1)-$ , a sulfur atom, an oxygen atom, a selenium atom, or  $-(R_2)C=C(R_3)-$ ;  $R_1$ ,  $R_2$  and  $R_3$  each independently represent a hydrogen atom or a substituent; and R represents a hydrogen atom, a halogen atom, an aliphatic group, an aryl group or a heterocyclic group; and

Formula (1c)



wherein,  $X_1$ ,  $X_2$  and  $X_3$  each independently represent a hydrogen atom or a substituent, provided that at least one of  $X_1$ ,  $X_2$  and  $X_3$  is a halogen atom;  $L_3$  represents a sulfonyl group, a carbonyl group or a sulfinyl group;  $n2$  represents 2 or 3;  $Y_3$  represents a single bond,  $-N(R_1)-$ , a sulfur atom, an oxygen atom, a selenium atom, or  $-(R_2)C=C(R_3)-$ ;  $R_1$ ,  $R_2$  and  $R_3$  each independently represent a hydrogen atom or a substituent; and R represents a hydrogen atom, a halogen atom, an aliphatic group, an

aryl group or a heterocyclic group.

2. An image forming method according to claim 1, wherein R is an alkyl group.

3. An image forming method according to claim 1, wherein at least one of  $X_1$ ,  $X_2$  and  $X_3$  is Br.

4. An image forming method according to claim 1, wherein  $Y_1$  is  $-N(R_1)-$ .

5. An image forming method according to claim 4, wherein  $R_1$  is an alkyl group.

6. An image forming method according to claim 1, wherein  $Y_2$  is  $-N(R_1)-$ .

7. An image forming method according to claim 6, wherein  $R_1$  is a hydrogen atom.

8. An image forming method according to claim 1, wherein  $Y_3$  is a single bond.

9. An image forming method according to claim 1, wherein  $n_2$  represents 2.

10. An image forming method according to claim 1, wherein R and  $R_1$ , or R and  $R_3$  form a ring.

11. An image forming method according to claim 10, wherein the ring is an alicyclic group.

12. An image forming method according to claim 1, wherein the distance between the scanning exposure position and the insertion part of the thermal developing portion is 45 cm or less.

13. An image forming method according to claim 1, wherein the photothermographic material has a silver coating amount of 1.9 g or less per 1 m<sup>2</sup> of the photothermographic material.

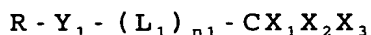
14. An image forming method according to claim 1, wherein thermal development is carried out for 6 seconds to 14 seconds.

15. An image forming method for forming an image with an image forming apparatus including an exposing portion which scan exposes, with a laser beam, a photothermographic material comprising a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent and a binder on at least one surface of a support, and a thermal developing portion, wherein:

1) the photothermographic material comprises at least one compound selected from compounds represented by the following formulae (1a), (1b) and (1c); and

2) a line speed of the thermal development is 20 mm/sec or higher:

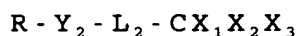
Formula (1a)



wherein,  $X_1$ ,  $X_2$  and  $X_3$  each independently represent a hydrogen atom or a substituent, provided that at least one of  $X_1$ ,  $X_2$  and  $X_3$  is a halogen atom;  $L_1$  represents a sulfonyl group;  $n1$  represents 0 or 1;  $Y_1$  represents -

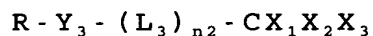
$N(R_1)-$ , a sulfur atom, an oxygen atom, a selenium atom, or  $-(R_2)C=C(R_3)-$ ;  $R_1$ ,  $R_2$  and  $R_3$  each independently represent a hydrogen atom or a substituent; and  $R$  represents a hydrogen atom, a halogen atom, an aliphatic group, an aryl group or a heterocyclic group;

Formula (1b)



wherein,  $X_1$ ,  $X_2$  and  $X_3$  each independently represent a hydrogen atom or a substituent, provided that at least one of  $X_1$ ,  $X_2$  and  $X_3$  is a halogen atom;  $L_2$  represents a carbonyl group or a sulfinyl group;  $Y_2$  represents  $-N(R_1)-$ , a sulfur atom, an oxygen atom, a selenium atom, or  $-(R_2)C=C(R_3)-$ ;  $R_1$ ,  $R_2$  and  $R_3$  each independently represent a hydrogen atom or a substituent; and  $R$  represents a hydrogen atom, a halogen atom, an aliphatic group, an aryl group or a heterocyclic group; and

Formula (1c)



wherein,  $X_1$ ,  $X_2$  and  $X_3$  each independently represent a hydrogen atom or a substituent, provided that at least one of  $X_1$ ,  $X_2$  and  $X_3$  is a halogen atom;  $L_3$  represents a sulfonyl group, a carbonyl group or a sulfinyl group;  $n2$  represents 2 or 3;  $Y_3$  represents a single bond,  $-N(R_1)-$ , a sulfur atom, an oxygen atom, a selenium atom, or  $-(R_2)C=C(R_3)-$ ;  $R_1$ ,  $R_2$  and  $R_3$  each independently represent a

hydrogen atom or a substituent; and R represents a hydrogen atom, a halogen atom, an aliphatic group, an aryl group or a heterocyclic group.

16. An image forming method according to claim 15, wherein R is an alkyl group.

17. An image forming method according to claim 15, wherein at least one of  $X_1$ ,  $X_2$  and  $X_3$  is Br.

18. An image forming method according to claim 15, wherein  $Y_1$  is  $-N(R_1)-$ .

19. An image forming method according to claim 18, wherein  $R_1$  is an alkyl group.

20. An image forming method according to claim 15, wherein  $Y_2$  is  $-N(R_1)-$ .

21. An image forming method according to claim 20, wherein  $R_1$  is a hydrogen atom.

22. An image forming method according to claim 15, wherein  $Y_3$  is a single bond.

23. An image forming method according to claim 15, wherein  $n_2$  represents 2.

24. An image forming method according to claim 15, wherein R and  $R_1$ , or R and  $R_3$  form a ring.

25. An image forming method according to claim 24, wherein the ring is an alicyclic group.

26. An image forming method according to claim 15, wherein the line speed of the thermal development is 24

mm/sec or higher.

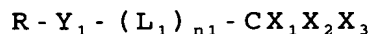
27. An image forming method according to claim 15, wherein the line speed of the thermal development is 28 mm/sec or higher.

28. An image forming method according to claim 15, wherein a development efficiency at a maximum density part is 70% or more.

29. An image forming method according to claim 15, wherein a hue-angle of the image at an optical density of 1.0 is from 180° to 270°.

30. An image forming method comprising thermally developing a photothermographic material comprising a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent and a binder on at least one surface of a support and comprising at least one compound selected from compounds represented by the following formulae (1a), (1b) and (1c), with an interval time of 12 seconds or less:

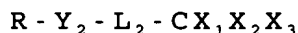
Formula (1a)



wherein,  $X_1$ ,  $X_2$  and  $X_3$  each independently represent a hydrogen atom or a substituent, provided that at least one of  $X_1$ ,  $X_2$  and  $X_3$  is a halogen atom;  $L_1$  represents a sulfonyl group;  $n1$  represents 0 or 1;  $Y_1$  represents -N( $R_1$ )-, a sulfur atom, an oxygen atom, a selenium atom,

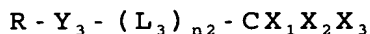
or  $-(R_2)C=C(R_3)-$ ;  $R_1$ ,  $R_2$  and  $R_3$  each independently represent a hydrogen atom or a substituent; and  $R$  represents a hydrogen atom, a halogen atom, an aliphatic group, an aryl group or a heterocyclic group;

Formula (1b)



wherein,  $X_1$ ,  $X_2$  and  $X_3$  each independently represent a hydrogen atom or a substituent, provided that at least one of  $X_1$ ,  $X_2$  and  $X_3$  is a halogen atom;  $L_2$  represents a carbonyl group or a sulfinyl group;  $Y_2$  represents  $-N(R_1)-$ , a sulfur atom, an oxygen atom, a selenium atom, or  $-(R_2)C=C(R_3)-$ ;  $R_1$ ,  $R_2$  and  $R_3$  each independently represent a hydrogen atom or a substituent; and  $R$  represents a hydrogen atom, a halogen atom, an aliphatic group, an aryl group or a heterocyclic group; and

Formula (1c)



wherein,  $X_1$ ,  $X_2$  and  $X_3$  each independently represent a hydrogen atom or a substituent, provided that at least one of  $X_1$ ,  $X_2$  and  $X_3$  is a halogen atom;  $L_3$  represents a sulfonyl group, a carbonyl group or a sulfinyl group;  $n2$  represents 2 or 3;  $Y_3$  represents a single bond,  $-N(R_1)-$ , a sulfur atom, an oxygen atom, a selenium atom, or  $-(R_2)C=C(R_3)-$ ;  $R_1$ ,  $R_2$  and  $R_3$  each independently represent a hydrogen atom or a substituent; and  $R$  represents a



hydrogen atom, a halogen atom, an aliphatic group, an aryl group or a heterocyclic group.

31. An image forming method according to claim 30, wherein the interval time is 10 seconds or less.

32. An image forming method according to claim 30, wherein a hue-angle of the image at an optical density of 1.0 is from 180° to 270°.

33. An image forming method according to claim 30, wherein the photothermographic material has a silver coating amount of 1.0 g/m<sup>2</sup> to 1.9 g/m<sup>2</sup>.

34. An image forming method according to claim 30, wherein thermal development is carried out for 6 seconds to 14 seconds.

35. An image forming method according to claim 30, wherein a development efficiency at a maximum density part is 70% or more.